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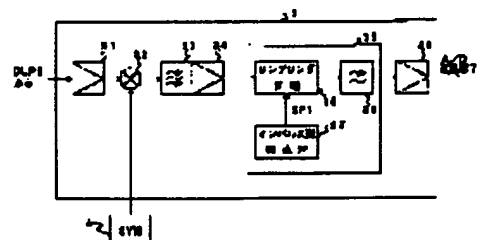
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(54) FREQUENCY CONVERTING CIRCUIT AND RADIO COMMUNICATION DEVICE EQUIPPED WITH SAME

(57)Abstract:

PURPOSE: To prevent signals in plural frequency ranges from being superposed before conversion by sampling a 1st received intermediate frequency signal by a sampling circuit according to an impulse sequence of frequency meeting specific requirements.

CONSTITUTION: A 1st received intermediate frequency signal passing through the mixer 32, etc., of a receiving circuit 3 is sampled by the sampling circuit 36 of a frequency converting circuit 35, and the circuit 36 samples the input signal with the impulse sequence SP1 of frequency F_s , outputted by an impulse sequence generator 37, which meets the conditions shown by the inequality. This sampling corresponds to the convolution between the frequency spectrum of the 1st received intermediate frequency signal and the frequency spectrum of the impulse sequence SP1, so plural spectrum appear at specific intervals, and the spectrum of the lowest center frequency passes through an LPF 38 to become a 2nd received intermediate frequency signal which has a sufficient signal level while frequency signals before frequency conversion are prevented from being superposed. In the inequality, FC and FB are the center frequency and band of the input signal.



$$\frac{2(F_c - F_B)}{\left\lceil \frac{F_c - F_B}{2F_B} \right\rceil - N} < 2\pi < \frac{2(F_c + F_B)}{\left\lceil \frac{F_c + F_B}{2F_B} \right\rceil - (N+1)}$$

N = 0, 1, 2, ..., $\left\lceil \frac{F_c + F_B}{2F_B} \right\rceil - 1$

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